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which a stock of isolated elements plays a part; is from 'pure experience' or undifferentiated feelings to discrimination, on the one hand, to generalizations, abstractions, on the other. If, as seems probable, the Primates display a vast increase of associations, and a stock of free-swimming ideas, our view gives to the line of descent a meaning which it never could have so long as the question was the vague one of more or less 'intelligence.' It will, I hope, when supported by an investigation of the mental life of the Primates and of the period in child life when these directly practical associations become overgrown by a rapid luxuriance of free ideas, show us the real history of the origin of human faculty.

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THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

THE American Society of Mechanical Engineers held their spring meeting at Niagara Falls, May 31st to June 3d, inclusive. The reception was initiated by Mayor Hastings in an interesting and cordial address, and by Mr. Coleman Sellers, and Mr. W. A. Brackenridge, who described with lantern-illustrations the work of the Cataract Construction Company. In addition to Society business, the time was given to visits to points of professional interest, at Niagara and at Buffalo and adjacent towns, and, later, at Dunkirk and at Toronto.

Some very important papers were read, Mr. Barrus made a 'Plea for a Standard Method of Conducting Engine Tests'; intending particularly tests of mill-engines; the Society having already, through special committees, established precise methods of engine trial for steam pumping engines and locomotives, and of steam-boilers, which

have been accepted as models, almost universally. A standard is now proposed that shall be general and cover the whole field. Mr. Bryan Donkin, an English member of the association, proposes an extension of these systems into other countries. The American Society having led the way in instituting such formal programs, steps should be now taken to secure general adoption throughout the world.

Mr. James See presented a very concise discussion of the principal points to be considered in patenting new devices. Mr. W. H. Bryan discussed 'Relations Between the Purchaser, the Engineer and the Manufacturer,' a phase of economics which is attracting much attention among members of the engineering profession. Mr. G. A. Lowry gave an interesting outline of the development of the industry of ginning and baling cotton, and of the inventions which have brought about its remarkable progress. Messrs. Woolson, Baker, Norton, Cole, Johnson and others discussed the construction, setting and details of steam-boiler practice. Mr. Benjamin detailed results of investigation of the strength of cast-iron cylinders, and Professor Carpenter reported the outcome of the extensive Sibley College researches on the properties of the aluminum alloys, with the various other useful metals and experiments upon the value of a remarkable new seamless tube. Dr. Thurston illustrated a variety of novel 'Graphic Diagrams and Glyptic Models,' employed for representation of the laws of variation of strength of materials of engineering and the economics of the steam engine, mainly of his own devising for use in his researches in these departments.

R. H. THURSTON.

BOTANICAL NOTES.

BOTANY AND AGRICULTURE.

IN the Proceedings of the Eighteenth Annual Meeting of the Society for the Pro-

motion of Agricultural Science, just received, several of the papers have considerable botanical interest. W. R. Lazenby, in a paper on the 'Annual Growth of Forest Trees,' makes the statement that "the greatest annual increase in diameter took place on the side most fully exposed to the light, but the greatest growth in length of branches was often on the side not fully exposed." R. C. Kedzie, in 'The Ash of Epiphytes,' answers the question of the supply of mineral matter to epiphytes by first calling attention to the economical use of the supply on hand. In speaking of the orchids he says: "Note the thin and papery remains of their leaves, and see how carefully mineral matter has been removed from these cast-off clothes of the plant, and how they differ from the leaves of terrestrial plants." He then enumerates the following sources of mineral plant food: (1) soil water with which the plants are often watered; (2) winds which carry considerable amounts of mineral matter; (3) the bark of trees which supports the epiphytes and also the pottery, etc., used for supports in conservatories; (4) very often in nature the roots of orchids grow in a mass of decaying leaves which have fallen from the trees and lodged about the plants. B. D. Halsted contributes some 'Notes upon Bean and Pea Tubercles,' which are due to the presence of a parasite, *Rhizobium leguminosarum*. It was found that larger crops resulted from plantings upon ground known to be infested with these parasites.

PAPERS ON THE DISEASES OF PLANTS.

FROM ERWIN F. SMITH we have a paper on Wakker's Hyacinth Bacterium (Abstract in Proc. A. A. A. S. 46: 274) confirming fully the conclusions reached by Wakker in 1882-5, and extending quite materially our knowledge of the organism which is the cause of the disease. The same author's lecture on 'The Spread of Plant Diseases,'

before the Mass. Hort. Society and published in its Transactions, is an excellent popular statement of our knowledge of the means by which certain parasites succeed in getting from one plant to another. He groups them under the following heads: (a) spread by insects; (b) spread by slugs and snails; (c) spread through the manure pile; (d) spread by way of the soil; (e) spread by way of seeds, seedlings, buds, tubers, cuttings and nursery stock. In a third paper the same author discusses (Trans. Peninsular Hort. Soc. 1898: 142) 'Some Bacterial Diseases of Truck Crops,' noticing the 'wilt' of the cucumber, 'Brown Rot' of the potato, and 'Black Rot' of the cabbage.

W. T. Swingle discusses 'The Grain Smuts' in Bull. 75, U. S. Dept. Agriculture, describing the stinking smuts of wheat (*Tilletia foetens* and *T. tritici*), loose smut of wheat (*Ustilago tritici*), loose smut of oats (*Ustilago avenae*), barley smuts (*Ustilago hordei*, *U. nuda*), rye smut (*Urocystis occulta*) and maize smut (*Ustilago maydis*). Directions for treating the seed and grain, including corrosive-sublimate, copper sulphate, formalin, potassium sulphide, and 'sar' solution, all of which are intended to kill the spores by poisoning are given. Jensen's hot-water treatment, also, is described and recommended for certain species.

F. C. Stewart in Bull. 138 of the Geneva (N. Y.) Experiment Station records his results, which show that the popular opinion that the plowing under of green rye will prevent potato scab (*Oospora scabies*) is erroneous. He concludes, also, that the potato-stem blight is not due to the presence of fungi or bacteria, but that, on the contrary, it is a pathological condition, not communicable. The practice of some florists of spraying carnations to prevent carnation-rust (*Uromyces caryophyllinus*) is shown to be useless; the salt application neither prevents the rust nor gives the

plants a more vigorous growth. The efficacy of spraying cucumbers with Bordeaux mixture to prevent attacks of Downy Mildew (*Plasmopara cubensis*) was demonstrated by an extensive experiment. Incidentally Mr. Stewart records a new host, *Cucumis moschata* (winter crook-neck squash) for this mildew.

C. S. Crandall in Bull. 41 of the Colorado Expt. Station discusses 'Blight and other Plant Diseases,' bringing together in compact form the history of the investigation of blight, culminating with the discovery of the bacterium, *Micrococcus amylovorus* (*Bacillus amylovorus*), by Burrill in 1878-80, and the demonstration that this organism is the active cause, by Arthur in 1884-5.

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CURRENT NOTES ON ANTHROPOLOGY.

THE ARYAN QUESTION.

IN the *Revue Mensuelle* for February, Dr. Zaborowski, a high authority, sums up the result of his long researches into the origin of the Aryans. At the beginning of the neolithic period, he tells us, the blond, long-skulled energetic Aryans of primitive stock occupied the plains of the center and north of Europe. They extended gradually to the west and the British Isles (peoples of the 'long barrows'), and to the east into Asia (Ossetes of the Caucasus, ancient Persians, etc.). Their migratory movements were accelerated during the neolithic period by the constant pressure of short-skulled Turanian tribes from northern Asia, who by their settlements and intermixture of blood have left profound traces in the present European peoples. It was during the early neolithic period that the division of the primitive Aryan tongue into its numerous dialects and languages took place under complicated conditions of tribal minglings.

POLYANDRY AMONG THE SEMITES.

THERE is a frequently quoted passage in Strabo which attributes a condition of the polyandry to the Semitic tribes of southern Arabia. This assertion has remained open to doubt for lack of supporting evidence, although the Israelitic proper name Ahab, 'brother of his father,' and that of the daughter of Sargon, Achat-Abi-sha, 'wife of her father,' indicate such a custom. In the *Proceedings* of the Berlin Anthropological Society for January, Dr. Hugo Winkler gives the translation of a Minæan inscription (Halévy, 504) which leaves no doubt of the correctness of Strabo's statement. From these facts he concludes that polyandry in its most extended form, that in which the communal wife belonged at the same time to both fathers and sons, 'was generally prevalent.'

It is well known that an allied method of marriage still obtains in various parts of the world, and even among the comparatively civilized inhabitants of Tibet.

THE 'FOLK-MIND.'

IN the *Beilage* to the *Münchener Allgemeine Zeitung* (No. 76, 1897) the writer, Max Buchner, undertakes a general onslaught upon the works and the teachings of the eminent anthropologist Adolf Bastian. It were scarcely worth while to take serious notice of this feuilletonist, who humorously quotes some of the brain-twisting paragraphs of the 'Altmeister' as specimens of his style; but the main aim of the article is to overthrow the notion of the 'Völkergedanke,' as so often and diffusely presented by Bastian. This is an integral and indispensable part of his anthropological edifice and must not be given up lightly. That each human group (nation, folk) has its own peculiar way of looking at things and taking in ideas cannot be disputed. Upon this way its fate in the world's history largely depends. Such a folk-mind